



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

MIRROR LAKE, TUFTONBORO, NH

2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Data Graphics)

- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride were generally slightly elevated with the exception of East Inlet. Average conductivity levels ranged from a high of 109.1 uS/cm to 55.65 uS/cm. Conductivity levels were elevated, but remained stable from Abenaki Lagoon to West Inlet A. Conductivity was lower in the East Inlet branch after filtering through wetland systems. Chloride levels ranged from 21 mg/L to 6 mg/L and generally follow the same pattern as conductivity. Conductivity has remained lower and stable since the initially high levels measured in 2007. We hope to see this trend continue.
- ♣ **TOTAL PHOSPHORUS:** Phosphorus levels at all stations ranged from an average of 124 ug/L to 24 ug/L. Abenaki Lagoon phosphorus levels were slightly elevated in early and late June, but spiked in August when turbidity was slightly higher indicating potential organic matter in the sample which could have impacted the phosphorus level. Downstream at Waumbeck Rd. the phosphorus levels slightly elevated in early June, spiked in late June following a 3.0 inch rain event with high turbidity indicating potential stormwater impacts, and then decreased to average levels in August and November. Further downstream in West Inlet A phosphorus levels were average and remained stable on each sampling event. East Inlet phosphorus levels were elevated through August, but decreased significantly in November. Generally, phosphorus levels have remained between 20 and 40 ug/L under normal conditions with stormwater runoff, low flows and organic matter typically responsible for spikes in phosphorus levels.
- ♣ **TURBIDITY:** Turbidity levels were generally low at all stations ranging from an average of 3.06 NTUs to 1.31 NTUs. However, turbidity spiked at Abenaki Lagoon in August and at Waumbeck Rd. in late June. Organic matter may have contributed to the elevated levels at Abenaki Lagoon and stormwater runoff and high flows may have contributed to the elevated level at Waumbeck Rd.
- ♣ **pH:** pH levels were generally in the desirable range 6.5 – 8.0 at all stations except East Inlet due to wetland influences. pH levels have remained stable at all stations since monitoring began.
- ♣ **RECOMMENDED ACTIONS:** Conductivity and chloride have remained relatively stable since 2009, and phosphorus is generally stable at Abenaki Lagoon and West Inlet A. Waumbeck Rd. and East Inlet experience the greatest variability in water quality conditions and generally appears to be related to stormwater and tributary flow. Identify any areas between Abenaki Lagoon and Waumbeck Rd. that may be contributing to elevated phosphorus and turbidity. In particular, a small pond located within a gravel pit type operation appears to discharge to the tributary. If possible, collect samples where this discharge enters the tributary system to identify any impacts.

Station Name	Table 1. 2013 Average Water Quality Data for MIRROR LAKE				
	Chloride	Cond.	Total P	Turb.	pH
	mg/l	uS/cm	ug/l	ntu	
Abenaki Lagoon	21	110.93	24	2.13	6.71
East Inlet	6	55.65	49	1.31	6.05
Waumbeck Rd	19	109.1	124	3.06	6.88
West Inlet A	20	106.4	25	1.34	6.69

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: < 230 mg/L (chronic)

E. coli: > 88 cts/100 mL – public beach

E. coli: > 406 cts/100 mL – surface waters

Turbidity: > 10 NTU above natural level

pH: 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L

Chlorophyll-a: 4.58 mg/m³

Conductivity: 40.0 uS/cm

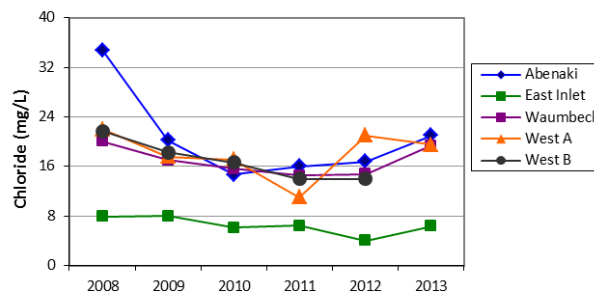
Chloride: 4 mg/L

Total Phosphorus: 12 ug/L

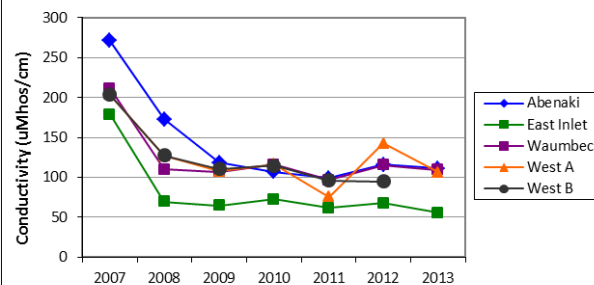
Transparency: 3.2 m

pH: 6.6

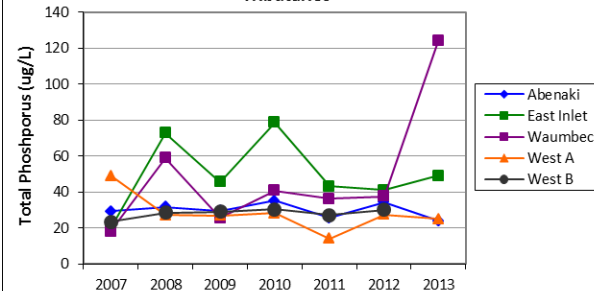
Average Annual Chloride for Mirror Lake Tributaries



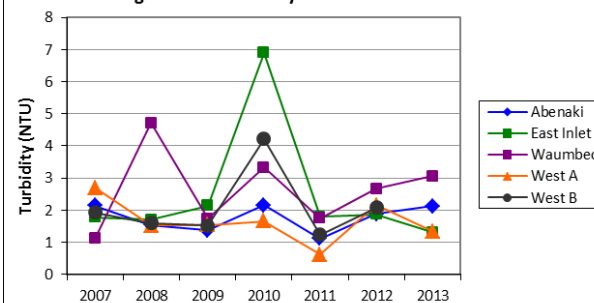
Average Annual Conductivity for Mirror Lake Tributaries



Average Annual Total Phosphorus for Mirror Lake Tributaries



Average Annual Turbidity for Mirror Lake Tributaries



Average Annual pH for Mirror Lake Tributaries

